

CLAIMS

1. An updatable electronic device comprising:
 - a memory having at least one of firmware and software;
 - a first firmware component for determining the occurrence of at least one of an error and an exception during the execution of the at least one of firmware and software;
 - a second firmware component for gathering at least one parameter related to the occurrence of the at least one of an error and an exception;
 - interface circuitry for receiving update information via a communication network, the update information based upon the at least one parameter; and
 - a third firmware component for applying the update information to at least a portion of the at least one of firmware and software.
2. The device of claim 1 wherein the at least one parameter comprises at least one of a type of error, an error code, an error message, a type of exception, an identifier of a component, an identifier of a module, stack trace information, a computed hash value, and a device characteristic.
3. The device of claim 2 wherein the device characteristic comprises at least one of a manufacture identifier, a model identifier, a firmware version number, a hardware version number, a battery level, a communication statistic, and a serial number.
4. The device of claim 1 wherein the device is a mobile handset.
5. The device of claim 1 wherein the communication network comprises a wireless network.
6. The device of claim 1 further comprising a fourth firmware component for generating an identifier for identifying an update information used to correct the at least one of an error and an exception.

7. The device of claim 1 wherein the device transmits the at least one parameter to at least one server via the communication network, the at least one server identifying the update information used to correct the at least one of an error and an exception.

8. The device of claim 1 wherein the update information comprises information for retrieving at least one update package via the communication network.

9. The device of claim 1 wherein the update information comprises a set of instructions for converting the at least a portion of the at least one of firmware and software from a first version to a second version.

10. The device of claim 1 wherein at least one of the first firmware component, the second firmware component, and the third firmware component initiate at least one of a restart and a reboot of the device.

11. The device of claim 10 wherein the device stores information related to the at least one of an error and an exception for use after at least one of a power-up, a restart and a reboot of the device.

12. The device of claim 10 wherein the device updates the at least a portion of the at least one of firmware and software following at least one of a power-up, a restart and a reboot of the device.

13. The device of claim 1 wherein the at least one of firmware and software comprises a java virtual machine.

14. A method of operating an updatable electronic device comprising a memory containing at least one of firmware and software, the method comprising:
determining whether at least one of an error and an exception has occurred;
continuing regular processing if the at least one of an error and an exception has not occurred;
generating an identifier based upon at least one parameter, if the at least one of an error and an exception has occurred;
receiving, via a communication network, update information based upon the identifier; and

updating at least a portion of the at least one of firmware and software using the update information.

15. The device of claim 14 wherein the at least one parameter comprises at least one of a type of error, an error code, an error message, a type of exception, an identifier of a component, an identifier of a module, stack trace information, a computed hash value, and a device characteristic.

16. The device of claim 15 wherein the device characteristic comprises at least one of a manufacture identifier, a model identifier, a firmware version number, a hardware version number, a battery level, a communication statistic, and a serial number.

17. The method of claim 14 wherein the device is a mobile handset.

18. The method of claim 14 wherein the communication network comprises a wireless network.

19. The method of claim 14 wherein the device transmits the at least one parameter to at least one server via the communication network, the at least one server identifying the update information used to correct the at least one of an error and an exception.

20. The method of claim 14 wherein the update information comprises information for retrieving at least one update package via the communication network.

21. The method of claim 14 wherein the update information comprises a set of instructions for converting the at least a portion of the at least one of firmware and software from a first version to a second version.

22. The method of claim 14 further comprising:
initiating at least one of a restart and a reboot of the device.

23. The method of claim 14 further comprising:
storing information related to the at least one of an error and an exception for use after at least one of a power-up, a restart and a reboot of the device.

24. The method of claim 23 wherein the device updates the at least a portion of the at least one of firmware and software following the at least one of a power-up, a restart and a reboot of the device.

25. The method of claim 14 further comprising:
logging the occurrence of the at least one of an error and an exception.

26. The method of claim 25 further comprising:
communicating, via the communication network, the logged occurrence of the at least one of an error and an exception.

27. A method of operating an updatable electronic device, the method comprising:
determining that at least one of a firmware and a software error has occurred;
gathering at least one parameter related to the at least one of a firmware and a software error;
identifying update information for correcting the at least one of a firmware and a software error;
receiving the update information via a communication network; and
updating at least one of firmware and software using the update information.

28. The method of claim 27 wherein the communication network comprises a wireless network.

29. The method of claim 27 wherein the update information comprises a set of instructions for converting the at least one of firmware and software from a first version to a second version.

30. A network for updating at least one of firmware and software in at least one updatable electronic device, the network comprising:
at least one server receiving at least one of device characteristics and an error report from the at least one updatable electronic device, the at least one server retrieving appropriate update information based on the at least one of device characteristics and an error report;

the server communicating the update information to the at least one updatable electronic device using a wireless interface; and

the at least one updatable electronic device using the update information to update the at least one of firmware and software.

31. The network of claim 30 wherein the update information comprises an update package having a set of instructions for converting the at least one of firmware and software from a first version to a second version.

32. The network of claim 30 wherein the updatable electronic device comprises a mobile handset.

33. The network of claim 30 wherein the device characteristics comprise at least one of a manufacture identifier, a model identifier, a firmware version number, a hardware version number, a battery level, a communication statistic, and a serial number.

34. The network of claim 30 wherein the updatable electronic device further comprises a display for displaying information regarding at least one of an error, an exception, and an event to a user.

35. The network of claim 34 wherein the displayed information comprises a user prompt to solicit user approval for at least one of the communication of the update information and the update of the at least one of firmware and software.